

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Per.: \_\_\_\_\_

**Station 1 - Concept**

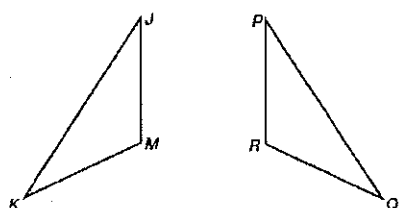
Congruent means...

When you are trying to show that two triangles are congruent, you don't need to show ALL sides and ALL angles are the same. The following pieces of information are enough to prove two triangles congruent:

**Station 2 – Check the answer key!**

Check the answer key for your Topic 5 Problem Set (NEON yellow)

**Station 3 – What is missing?**

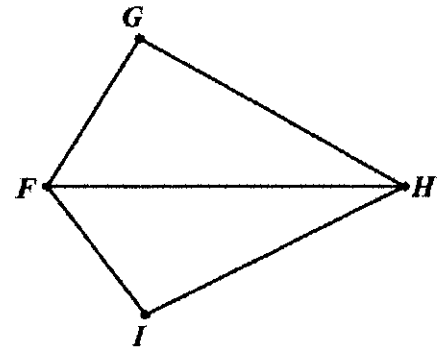


Given that  $\overline{JM} \cong \overline{PR}$ , what other information would you need to prove the triangles congruent by each of the following postulates?

<p style="text-align: center;"><b>AAS</b></p> <p>1.</p> <p>2.</p>	<p style="text-align: center;"><b>ASA</b></p> <p>3.</p> <p>4.</p>
<p style="text-align: center;"><b>SSS</b></p> <p>5.</p> <p>6.</p>	<p style="text-align: center;"><b>SAS</b></p> <p>7.</p> <p>8.</p>

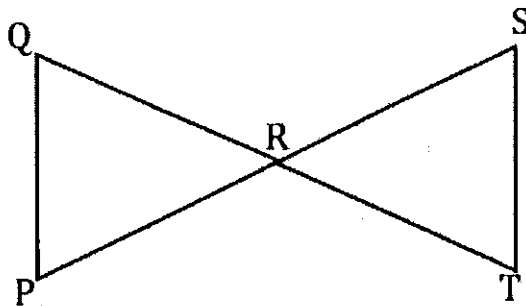
Station 4 – Proofs!

Given:  $\angle G \cong \angle I$ ;  $\overline{FH}$  bisects  $\angle GFI$   
Prove:  $\triangle GFH \cong \triangle IFH$



Statements	Reasons
1. $\angle G \cong \angle I$ ; $\overline{FH}$ bisects $\angle GFI$	1.
2. $\angle GFH \cong \angle IFH$	2. Def. of _____
3.	3. Reflexive Prop.
4.	4.

12. Given:  $\overline{QT}$  bisects  $\overline{SP}$ ,  $\overline{SP}$  bisects  $\overline{QT}$

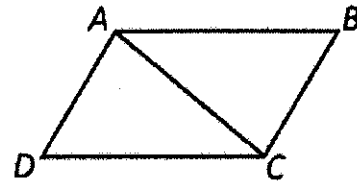


Prove:  $\triangle QRP \cong \triangle SRT$

Statements	Reasons
1. $\overline{QT}$ bisects $\overline{SP}$	1. Given
2.	2. Given
3. $\overline{QR} \cong \overline{TR}$	3. Definition of Bisect
4. $\overline{PR} \cong \overline{SR}$	4.
5.	5. Vertical Angles
6. $\triangle QRP \cong \triangle SRT$	6.

1. Fill in the missing statements and reasons.

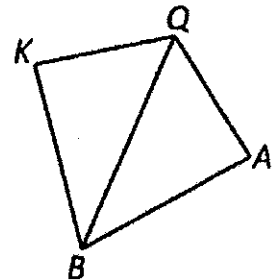
**Given:**  $AB \parallel DC$ ,  $\angle B \cong \angle D$   
**Prove:**  $BC \cong DA$



Statements	Reasons
1. _____	1. Given
2. $\angle BAC \cong \angle DCA$	2. _____
3. _____	3. Given
4. $AC \cong AC$	4. _____
5. $\triangle ABC \cong \triangle CDA$	5. _____ Congruence Theorem
6. _____	6. CPCTC

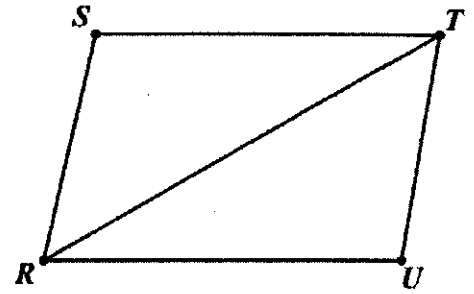
2. Complete the two-column proof.

**Given:**  $QK \cong QA$ ,  $QB$  bisects  $\angle KQA$   
**Prove:**  $KB \cong AB$



Statements	Reasons
1. _____	1. Given
2. $QB$ bisects $\angle KQA$	2. _____
3. _____	3. Definition of Bisector
4. _____	4. Reflexive Property of Congruence
5. $\triangle KBQ \cong \triangle$ _____	5. _____ Congruence Postulate
6. _____	6. _____

Given:  $\overline{ST} \parallel \overline{RU}$ ;  $\overline{SR} \parallel \overline{TU}$   
Prove:  $\triangle SRT \cong \triangle UTR$



Statements	Reasons
1. $\overline{ST} \parallel \overline{RU}$	1.
2.	2. If lines $\parallel$ , alt. int. $\angle$ s $\cong$
3. $\overline{SR} \parallel \overline{TU}$	3.
4. $\angle SRT \cong \angle UTR$	4.
5.	5.
6.	6.

### ANSWER KEY

#### Station 3

1.  $\angle J \cong \angle P$
2.  $\angle K \cong \angle Q$

3.  $\angle J \cong \angle P$
4.  $\angle M \cong \angle R$

5.  $\overline{JK} \cong \overline{PQ}$
6.  $\overline{MK} \cong \overline{RQ}$

7.  $\angle J \cong \angle P$
8.  $\overline{JK} \cong \overline{PQ}$

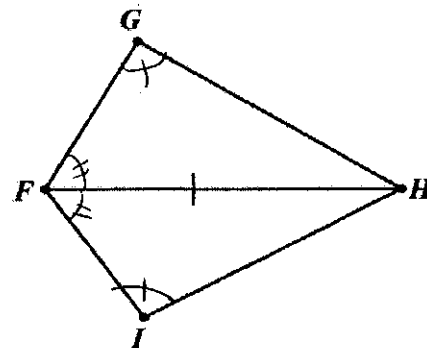
\*more than one  
correct answer for  
#7 and 8\*

#### Station 4

See attached.

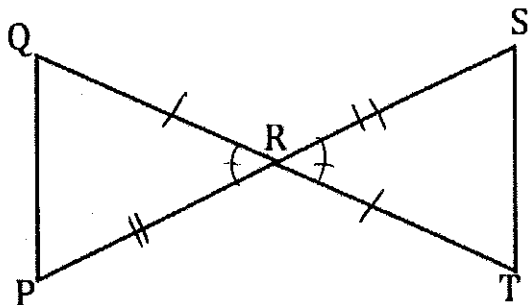
Station 4 – Proofs!

Given:  $\angle G \cong \angle I$ ;  $\overline{FH}$  bisects  $\angle GFI$   
Prove:  $\triangle GFH \cong \triangle IFH$



Statements	Reasons
1. $\angle G \cong \angle I$ ; $\overline{FH}$ bisects $\angle GFI$	1. Given
2. $\angle GFH \cong \angle IFH$	2. Def. of <u>bisect</u>
3. $\overline{FH} \cong \overline{FH}$	3. Reflexive Prop.
4. $\triangle GFH \cong \triangle IFH$	4. AAS

12. Given:  $\overline{QT}$  bisects  $\overline{SP}$ ,  $\overline{SP}$  bisects  $\overline{QT}$

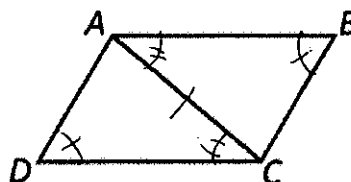


Prove:  $\triangle QRP \cong \triangle SRT$

Statements	Reasons
1. $\overline{QT}$ bisects $\overline{SP}$	1. Given
2. $\overline{SP}$ bisects $\overline{QT}$	2. Given
3. $\overline{QR} \cong \overline{TR}$	3. Definition of Bisect
4. $\overline{PR} \cong \overline{SR}$	4. Definition of Bisect
5. $\angle QRP \cong \angle SRT$	5. Vertical Angles
6. $\triangle QRP \cong \triangle SRT$	6. SAS

1. Fill in the missing statements and reasons.

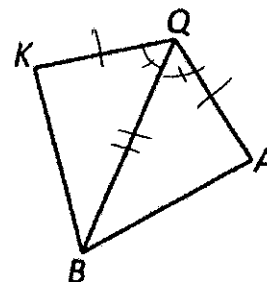
Given:  $\overline{AB} \parallel \overline{DC}$ ,  $\angle B \cong \angle D$   
Prove:  $\overline{BC} \cong \overline{DA}$



Statements	Reasons
1. $\overline{AB} \parallel \overline{DC}$	1. Given
2. $\angle BAC \cong \angle DCA$	2. Alt. int. angles are congruent
3. $\angle B \cong \angle D$	3. Given
4. $\overline{AC} \cong \overline{AC}$	4. Reflexive Property
5. $\triangle ABC \cong \triangle CDA$	5. AAS Congruence Postulate
6. $\overline{BC} \cong \overline{DA}$	6. CPCTC

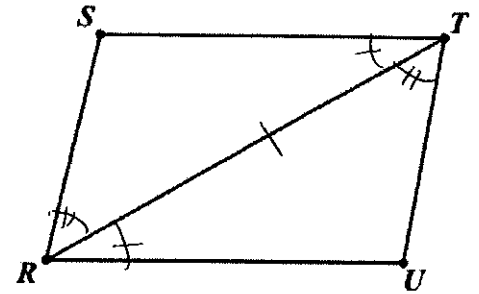
2. Complete the two-column proof.

Given:  $\overline{QK} \cong \overline{QA}$ ,  $\overline{QB}$  bisects  $\angle KQA$   
Prove:  $\overline{KB} \cong \overline{AB}$



Statements	Reasons
1. $\overline{QK} \cong \overline{QA}$	1. Given
2. $\overline{QB}$ bisects $\angle KQA$	2. Given
3. $\angle KQB \cong \angle AQB$	3. Definition of Bisector
4. $\overline{BQ} \cong \overline{BQ}$	4. Reflexive Property of Congruence
5. $\triangle KBQ \cong \triangle ABQ$	5. SAS Congruence Postulate
6. $\overline{KB} \cong \overline{AB}$	6. CPCTC

Given:  $\overline{ST} \parallel \overline{RU}$ ;  $\overline{SR} \parallel \overline{TU}$   
 Prove:  $\triangle SRT \cong \triangle UTR$



Statements	Reasons
1. $\overline{ST} \parallel \overline{RU}$	1. Given
2. $\angle STR \cong \angle UTR$	2. If lines $\parallel$ , alt. int. $\angle$ s $\cong$
3. $\overline{SR} \parallel \overline{TU}$	3. Given
4. $\angle SRT \cong \angle UTR$	4. If lines $\parallel$ , alt. int. $\angle$ s $\cong$
5. $\overline{RT} \cong \overline{RT}$	5. Reflexive
6. $\triangle SRT \cong \triangle UTR$	6. ASA